NEUROSCIENCE

An International Journal under the editorial direction of IBRO

Volume 56, 1993

TITLE SECTION
LIST OF CONTENTS
AND AUTHOR INDEX

PERGAMON PRESS
OXFORD · NEW YORK · SEOUL · TOKYO

NEUROSCIENCE

Chief Editors

P. G. KOSTYUK: *Department of General Physiology, A. A. Bogomoletz Institute of Physiology, Academy of Sciences, 4 Bogomoletz Street, Kiev 24, 252601 GSP, Ukraine*

R. LLINÁS: *Department of Physiology and Biophysics, New York University School of Medicine, 550 First Avenue, New York 10016, U.S.A.*

A. D. SMITH: *Department of Pharmacology, University of Oxford, Mansfield Road, Oxford OX1 3QT, U.K.*

Editorial Board

G. ASTON-JONES (*Philadelphia, PA*)
A. BJÖRKLUND (*Lund*)
T. V. P. BLISS (*London*)
J. P. BOLAM (*Oxford*)
A. G. BROWN (*Edinburgh*)
M. C. BROWN (*Oxford*)
J. BUREŠ (*Prague*)
R. E. BURKE (*Bethesda, MD*)
G. BUZSÁKI (*Newark, NJ*)
A. L. BYSOV (*Moscow*)
D. W. CHOI (*St Louis, MO*)
A. CONSTANTI (*London*)
M. COSTA (*Adelaide*)
J. T. COYLE (*Belmont, MA*)
W. CRILL (*Seattle, WA*)
A. C. CUELLO (*Montreal*)
A. C. DOLPHIN (*London*)
F. E. DUDEK (*Fort Collins, CO*)
S. B. DUNNETT (*Cambridge*)
D. EDGAR (*Liverpool*)
M. M. ESIRI (*Oxford*)
R. H. EVANS (*Bristol*)
D. S. FABER (*Philadelphia, PA*)
V. V. FANARDJIAN (*Yerevan*)
R. L. M. FAULL (*Auckland*)
R. FISCHER-COLBRIE (*Innsbruck*)
T. F. FREUND (*Budapest*)
G. GABELLA (*London*)
J. GARTHWAITE (*Beckenham*)
H. M. GERSCHENFELD (*Paris*)
J. GLOWINSKI (*Paris*)
J. A. GRAY (*London*)
A. M. GRAYBIEL (*Cambridge, MA*)
R. W. GUILLERY (*Oxford*)
L. HEIMER (*Charlottesville, VA*)
Z. HENDERSON (*Leeds*)
J. HERBERT (*Cambridge*)
M. HERKENHAM (*Bethesda, MD*)
D. E. HILLMAN (*New York, NY*)
T. HÖKFELT (*Stockholm*)
E. HOLTZMAN (*New York, NY*)
P. HOLZER (*Graz*)
O. HORNYKIEWICZ (*Vienna*)
J. HOUNSGAARD (*Copenhagen*)
S. P. HUNT (*Cambridge*)
H. JAHNSEN (*Copenhagen*)
B. E. JONES (*Montreal*)
E. G. JONES (*Irvine, CA*)
G. JU (*Xi'an*)
J. S. KELLY (*Edinburgh*)
B. I. KHODOROV (*Moscow*)
S. T. KITAI (*Memphis, TN*)
C. KÖHLER (*Basel*)
O. A. KRISHTAL (*Kiev*)
S. N. LAWSON (*Bristol*)
C. A. MARSDEN (*Nottingham*)
M. R. MATTHEWS (*Oxford*)
A. I. MATUS (*Basle*)
R. Y. MOORE (*Pittsburgh, PA*)
D. K. MOREST (*Farmington, CT*)
J. F. MORRIS (*Oxford*)
É. MUGNAINI (*Storrs, CT*)
W. J. H. NAUTA (*Cambridge, MA*)
T. ONO (*Toyama*)
F. ORREGO (*Santiago*)
J. M. PALACIOS (*Barcelona*)
S. L. PALAY (*Concord, MA*)
V. H. PERRY (*Oxford*)
J. M. POLAK (*London*)
P. RAKIC (*New Haven, CA*)
H. J. RALSTON (*San Francisco, CA*)
S. J. REDMAN (*Canberra*)
T. S. REESE (*Bethesda, MD*)
F. REINOSO-SUÁREZ (*Madrid*)
L. P. RENAUD (*Ottawa*)
M. RÉTHELYI (*Budapest*)
P. J. ROBERTS (*Bristol*)
H. A. ROBERTSON (*Halifax, N.S.*)
S. M. SHERMAN (*Stony Brook, NY*)
M. L. SHIK (*Moscow*)
M. V. SOFRONIEW (*Cambridge*)
P. SOMOGYI (*Oxford*)
C. SOTELO (*Paris*)
K. STARKE (*Freiburg*)
M. S. STARR (*London*)
M. STERIADE (*Québec*)
L. STJÄRNE (*Stockholm*)
K. SUZUKI (*Chapel Hill, NC*)
D. T. THEODOSIS (*Bordeaux*)
A. M. THOMSON (*London*)
S. R. VINCENT (*Vancouver*)
J. VOOGD (*Rotterdam*)
L. VYKLICKY (*Prague*)
K. D. WALTON (*New York, NY*)
X. S. T. WAN (*Beijing*)
S. P. WATSON (*Oxford*)
K. WICTORIN (*Lund*)
W. D. WILLIS (*Galveston, TX*)
H. WINKLER (*Innsbruck*)
D. J. WOODWARD (*Winston-Salem, NC*)
H. ZIMMERMANN (*Frankfurt*)
C. ZUCKER (*Boston, MA*)

IBRO Publications Committee

Chairman, A. D. SMITH; C. BLAKEMORE, R. LLINÁS, D. G. R. OTTOSON, D. P. PURPURA, P. G. STRATA.

Aims and Scope:
Neuroscience publishes papers describing the results of original research on any aspect of the scientific study of the nervous system. Since one of the chief aims of the Journal is to promote communication between neuroscientists, the type of paper most suitable for publication is that in which new observations are clearly and succinctly reported and in which the purpose of the study is made meaningful to scientists of other disciplines. Any paper, however short, will be considered for publication provided that it reports significant, new and carefully confirmed findings with full experimental details. For *Instructions to Authors* see Vol. 52, No. 1, pp. v–viii.

Production Editors: M. DAVIES, T. J. FISHER. *Editorial Assistants*: S. J. RUSSELL (U.K.), R. COXETER (U.S.).

Published 24 per annum, semi-monthly (six volumes, 1993)

Publishing, Subscription and Advertising Offices:

Headington Hill Hall, Oxford OX3 0BW [Tel: (0865) 794141; *Fax*: (0865) 60285]

Copyright © 1993 IBRO

LIST OF CONTENTS

VOLUME 56 NUMBER 1 1993

RESEARCH PAPERS

M. Steriade, R. Curró Dossi and **D. Contreras**	Electrophysiological properties of intralaminar thalamocortical cells discharging rhythmic (≈40 Hz) spike-bursts at ≈1000 Hz during waking and rapid eye movement sleep	1
P. K. Banerjee, E. Hirsch and **O. C. Snead III**	γ-Hydroxybutyric acid induced spike and wave discharges in rats: relation to high-affinity [^{3}H]γ-hydroxybutyric acid binding sites in the thalamus and cortex	11
C. Vidal and **J.-P. Changeux**	Nicotinic and muscarinic modulations of excitatory synaptic transmission in the rat prefrontal cortex *in vitro*	23
G. Nikkhah, W.-M. Duan, U. Knappe, A. Jödicke and **A. Björklund**	Restoration of complex sensorimotor behavior and skilled forelimb use by a modified nigral cell suspension transplantation approach in the rat Parkinson model	33
L. Rioux, C. Gagnon, D. P. Gaudin, T. Di Paolo and **P. J. Bédard**	A fetal nigral graft prevents behavioral supersensitivity associated with repeated injections of L-DOPA in 6-OHDA rats. Correlation with D1 and D2 receptors	45
J. F. Dong, A. Detta, M. H. M. Bakker and **E. R. Hitchcock**	Direct interaction with target-derived glia enhances survival but not differentiation of human fetal mesencephalic dopaminergic neurons	53
B. Hars, C. Maho, J.-M. Edeline and **E. Hennevin**	Basal forebrain stimulation facilitates tone-evoked responses in the auditory cortex of awake rat	61
V. Dubovik, M. Faigon, J. Feldon and **D. M. Michaelson**	Decreased density of forebrain cholinergic neurons in experimental autoimmune dementia	75
D. Eilam, H. Szechtman, M. Faigon, V. Dubovik, J. Feldon and **D. M. Michaelson**	Disintegration of the spatial organization of behavior in experimental autoimmune dementia	83
D. Lekieffre and **B. S. Meldrum**	The pyrimidine-derivative, BW1003C87, protects CA1 and striatal neurons following transient severe forebrain ischaemia in rats. A microdialysis and histological study	93
G. T. Finnerty and **J. G. R. Jefferys**	Functional connectivity from CA3 to the ipsilateral and contralateral CA1 in the rat dorsal hippocampus	101
D. B. Rye, J. Leverenz, S. G. Greenberg, P. Davies and **C. B. Saper**	The distribution of Alz-50 immunoreactivity in the normal human brain	109
M. J. Christie and **H. F. Jelinek**	Dye-coupling among neurons of the rat locus coeruleus during postnatal development	129
D. L. Rosin, D. Zeng, R. L. Stornetta, F. R. Norton, T. Riley, M. D. Okusa, P. G. Guyenet and **K. R. Lynch**	Immunohistochemical localization of α_{2A}-adrenergic receptors in catecholaminergic and other brainstem neurons in the rat	139
V. N. Kazakov, P. Ya. Kravtsov, E. D. Krakhotkina and **V. A. Maisky**	Sources of cortical, hypothalamic and spinal serotonergic projections: topical organization within the nucleus raphe dorsalis	157
M. L. Vizuete, C. de la Roza, V. Steffen, A. Machado and **J. Cano**	Changes in neurotransmitters in superior colliculus after neonatal enucleation: biochemical and immunocytochemical studies	165

S. Chen and **D. E. Hillman**	Compartmentation of the cerebellar cortex by protein kinase C delta	177
P. Elliott and **D. I. Wallis**	Glutamatergic and non-glutamatergic responses evoked in neonatal rat lumbar motoneurons on stimulation of the lateroventral spinal cord surface	189
T. A. P. Roeling, J. G. Veening, J. P. W. Peters, M. E. J. Vermelis and **R. Nieuwenhuys**	Efferent connections of the hypothalamic "grooming area" in the rat	199
N. S. Dehal, G. A. Dekaban, A. V. Krassioukov, F. J. Picard and **L. C. Weaver**	Identification of renal sympathetic preganglionic neurons in hamsters using transsynaptic transport of herpes simplex type 1 virus	227
I. Nagy, R. Pabla, C. Matesz, A. Dray, C. J. Woolf and **L. Urban**	Cobalt uptake enables identification of capsaicin- and bradykinin-sensitive subpopulations of rat dorsal root ganglion cells *in vitro*	241
F. González-Aguilar	What do the synaptic vesicles contain?	247

VOLUME 56 NUMBER 2 1993

LETTERS TO NEUROSCIENCE

I. von Kügelgen, K. Kurz and **K. Starke**	Axon terminal P_2-purinoceptors in feedback control of sympathetic transmitter release	263
C. J. Pike and **C. W. Cotman**	Cultured GABA-immunoreactive neurons are resistant to toxicity induced by β-amyloid	269

COMMENTARY

L. L. Voronin	On the quantal analysis of hippocampal long-term potentiation and related phenomena of synaptic plasticity	275

RESEARCH PAPERS

R. E. Burke and **K. G. Baimbridge**	Relative loss of the striatal striosome compartment, defined by calbindin-D_{28k} immunostaining, following developmental hypoxic–ischemic injury	305
Zs. Magloczky and **T. F. Freund**	Selective neuronal death in the contralateral hippocampus following unilateral kainate injections into the CA3 subfield	317
H. A. Cameron, C. S. Woolley, B. S. McEwen and **E. Gould**	Differentiation of newly born neurons and glia in the dentate gyrus of the adult rat	337
H. Aoki, H. Onodera, T. Yae, Z. Jian and **K. Kogure**	Neural grafting to ischemic CA1 lesions in the rat hippocampus: an autoradiographic study	345
M. Wong, Y. Chen and **R. L. Moss**	Excitatory and inhibitory synaptic processing in the accessory olfactory system of the female rat	355
W. L. Neuhuber, M. Appelt, J. M. Polak, W. Baier-Kustermann, L. Abelli and **G.-L. Ferri**	Rectospinal neurons: cell bodies, pathways, immunocytochemistry and ultrastructure	367
E. Mayer, S. B. Dunnett, R. Pellitteri and **J. W. Fawcett**	Basic fibroblast growth factor promotes the survival of embryonic ventral mesencephalic dopaminergic neurons—I. Effects *in vitro*	379
E. Mayer, J. W. Fawcett and **S. B. Dunnett**	Basic fibroblast growth factor promotes the survival of embryonic ventral mesencephalic dopaminergic neurons—II. Effects on nigral transplants *in vivo*	389

N. B. Mercuri, F. Stratta, P. Calabresi, A. Bonci and **G. Bernardi**	Activation of metabotropic glutamate receptors induces an inward current in rat dopamine mesencephalic neurons	399
D. L. Cardozo	Midbrain dopaminergic neurons from postnatal rat in long-term primary culture	409
R. Hata, M. Matsumoto, T. Hatakeyama, T. Ohtsuki, N. Handa, M. Niinobe, K. Mikoshiba, S. Sakaki, T. Nishimura, T. Yanagihara and **T. Kamada**	Differential vulnerability in the hindbrain neurons and local cerebral blood flow during bilateral vertebral occlusion in gerbils	423
J. Chan and **M. Quik**	A role for the nicotinic α-bungarotoxin receptor in neurite outgrowth in PC12 cells	441
G. M. O'Hanlon and **M. B. Lowrie**	Neonatal nerve injury causes long-term changes in growth and distribution of motoneuron dendrites in the rat	453
F. Casamenti, C. Scali, M. G. Vannucchi, L. Bartolini and **G. Pepeu**	Long-term ethanol consumption by rats: effect on acetylcholine release *in vivo*, choline acetyltransferase activity, and behavior	465
S. Jeftinija, L. Urban and **L. Kojic**	The selective activation of dorsal horn neurons by potassium stimulation of high threshold primary afferent neurons *in vitro*	473
A. Lopez-Roman, J. Ambrosiani and **J. A. Armengol**	Transient ipsilateral innervation of the cerebellum by developing olivocerebellar neurons. A retrograde double-labelling study with Fast Blue and Diamidino Yellow	485
M. T. Herrero, E. C. Hirsch, A. Kastner, M. Ruberg, M. R. Luquin, J. Laguna, F. Javoy-Agid, J. A. Obeso and **Y. Agid**	Does neuromelanin contribute to the vulnerability of catecholaminergic neurons in monkeys intoxicated with MPTP?	499
C. W. Shuttleworth, C. Xue, S. M. Ward, J. de Vente and **K. M. Sanders**	Immunohistochemical localization of 3′,5′-cyclic guanosine monophosphate in the canine proximal colon: responses to nitric oxide and electrical stimulation of enteric inhibitory neurons	513

VOLUME 56 NUMBER 3 1993

LETTERS TO NEUROSCIENCE

M. Glass, R. L. M. Faull and **M. Dragunow**	Loss of cannabinoid receptors in the substantia nigra in Huntington's disease	523
D. M. Reid, V. H. Perry, P.-B. Andersson and **S. Gordon**	Mitosis and apoptosis of microglia *in vivo* induced by an anti-CR3 antibody which crosses the blood–brain barrier	529
F. Gonon, M. Msghina and **L. Stjärne**	Kinetics of noradrenaline released by sympathetic nerves	535

COMMENTARY

F. Orrego and **S. Villanueva**	The chemical nature of the main central excitatory transmitter: a critical appraisal based upon release studies and synaptic vesicle localization	539

RESEARCH PAPERS

E. B. Keverne, F. Lévy, R. Guevara-Guzman and **K. M. Kendrick**	Influence of birth and maternal experience on olfactory bulb neurotransmitter release	557
M. E. Martone, D. M. Armstrong, S. J. Young and **P. M. Groves**	Cholinergic neurons are distributed preferentially in areas rich in substance P-like immunoreactivity in the caudate nucleus of the adult cat	567

T. F. Freund and **Zs. Maglóczky**	Early degeneration of calretinin-containing neurons in the rat hippocampus after ischemia	581
D. H. Lowenstein, M. S. Seren and **F. M. Longo**	Prolonged increases in neurotrophic activity associated with kainate-induced hippocampal synaptic reorganization	597
N. Agopyan, N. Tokutomi and **N. Akaike**	Protein kinase A-mediated phosphorylation reduces only the fast desensitizing glycine current in acutely dissociated ventromedial hypothalamic neurons	605
C. Darlot	The cerebellum as a predictor of neural messages—I. The stable estimator hypothesis	617
P. Denise and **C. Darlot**	The cerebellum as a predictor of neural messages—II. Role in motor control and motion sickness	647
M. D. Madeira, N. Sousa, A. R. Lieberman and **M. M. Paula-Barbosa**	Effects of chronic alcohol consumption and of dehydration on the supraoptic nucleus of adult male and female rats	657
D. R. Repaske, J. G. Corbin, M. Conti and **M. F. Goy**	A cyclic GMP-stimulated cyclic nucleotide phosphodiesterase gene is highly expressed in the limbic system of the rat brain	673
B. Rocha, G. Di Scala, M. Rigo,✝ D. Hoyer and **G. Sandner**	Effect of 5,7-dihydroxytryptamine lesion on mianserin-induced conditioned place aversion and on 5-hydroxytryptamine$_{1c}$ receptors in the rat brain	687
V. Pashkov, N. Grico, G. Tsurupa, L. Storchak, O. Shatursky, N. Himmelreich and **E. Grishin**	Monoclonal antibodies can uncouple the main α-latrotoxin effects: toxin-induced Ca^{2+} influx and stimulated neurotransmitter release	695
V. L. Woodburn, R. Oles, J. Poat, G. N. Woodruff and **J. Hughes**	Anticonvulsant agents, dizocilpine maleate, enadoline and HA 966 have different effects on *N*-methyl-DL-aspartate-induced immediate early gene induction in mice	703
O. Pagonopoulou, F. Angelatou and **G. Kostopoulos**	Effect of pentylentetrazol-induced seizures on A1 adenosine receptor regional density in the mouse brain: a quantitative autoradiographic study	711
W. C. Abraham, S. E. Mason, J. Demmer, J. M. Williams, C. L. Richardson, W. P. Tate, P. A. Lawlor and **M. Dragunow**	Correlations between immediate early gene induction and the persistence of long-term potentiation	717
J. Koistinaho, M. Pelto-Huikko, S. M. Sagar, Å. Dagerlind, R. Roivainen and **T. Hökfelt**	Differential expression of immediate early genes in the superior cervical ganglion after nicotine treatment	729
K. L. Thomas and **S. P. Hunt**	The regional distribution of extracellularly regulated kinase-1 and -2 messenger RNA in the adult rat central nervous system	741
P. T. Akins and **E. W. McCleskey**	Characterization of potassium currents in adult rat sensory neurons and modulation by opioids and cyclic AMP	759
J. Gigg, T. A. Patterson and **S. P. R. Rose**	Training-induced increases in neuronal activity recorded from the forebrain of the day-old chick are time dependent	771
I. Nishiyama, T. Seki, T. Oota, M. Ohta and **M. Ogiso**	Expression of highly polysialylated neural cell adhesion molecule in calcitonin-producing cells	777

BOOK REVIEW

R. S. G. Jones — *Epileptogenic and Excitotoxic Mechanisms. Vol.* 8 of *Current Problems in Epilepsy*. Edited by G. Avanzini, R. Fariello, U. Heinemann and R. Mutani — 787

VOLUME 56 NUMBER 4 — 1993

LETTER TO NEUROSCIENCE

B. M. Davis, G. R. Lewin, L. M. Mendell, M. E. Jones and **K. M. Albers** — Altered expression of nerve growth factor in the skin of transgenic mice leads to changes in response to mechanical stimuli — 789

COMMENTARY

A. N. van den Pol and **F. E. Dudek** — Cellular communication in the circadian clock, the suprachiasmatic nucleus — 793

RESEARCH PAPERS

K. Shinohara, K. Tominaga, C. Fukuhara, Y. Otori and **S.-I. T. Inouye** — Processing of photic information within the intergeniculate leaflet of the lateral geniculate body: assessed by neuropeptide Y immunoreactivity in the suprachiasmatic nucleus of rats — 813

M. L. H. J. Hermes and **L. P. Renaud** — Differential responses of identified rat hypothalamic paraventricular neurons to suprachiasmatic nucleus stimulation — 823

G. D. Rosen, G. F. Sherman and **A. M. Galaburda** — Neuronal subtypes and anatomic asymmetry: changes in neuronal number and cell-packing density — 833

H. Barbas — Organization of cortical afferent input to orbitofrontal areas in the rhesus monkey — 841

I. A. Shevelev, G. A. Sharaev, N. A. Lazareva, R. V. Novikova and **A. S. Tikhomirov** — Dynamics of orientation tuning in the cat striate cortex neurons — 865

R. Gebhard, K. Zilles, A. Schleicher, B. J. Everitt, T. W. Robbins and **I. Divac** — Distribution of seven major neurotransmitter receptors in the striate cortex of the new world monkey *Callithrix jacchus* — 877

A. Constanti, G. Bagetta and **V. Libri** — Persistent muscarinic excitation in guinea-pig olfactory cortex neurons: involvement of a slow post-stimulus afterdepolarizing current — 887

P. Duchamp-Viret and **A. Duchamp** — GABAergic control of odour-induced activity in the frog olfactory bulb: possible GABAergic modulation of granule cell inhibitory action — 905

A. Shuaib, S. Ijaz, R. Mazagri and **A. Senthilselvlvan** — CGS-19755 is neuroprotective during repetitive ischemia: this effect is significantly enhanced when combined with hypothermia — 915

Y. Liu, H. Kato, N. Nakata and **K. Kogure** — Temporal profile of heat shock protein 70 synthesis in ischemic tolerance induced by preconditioning ischemia in rat hippocampus — 921

L. J. Lawson, V. H. Perry and **S. Gordon** — Microglial responses to physiological change: osmotic stress elevates DNA synthesis of neurohypophyseal microglia — 929

R. Banerjee, R. D. Lund and **J. D. Radel** — Anatomical and functional consequences of induced rejection of intracranial retinal transplants — 939

B. C. Figueiredo, P. Piccardo, D. Maysinger, P. B. S. Clarke and **A. C. Cuello** — Effects of acidic fibroblast growth factor on cholinergic neurons of nucleus basalis magnocellularis and in a spatial memory task following cortical devascularization — 955

M. T. Herrero, I. Perez-Otaño, C. Oset, A. Kastner, E. C. Hirsch, Y. Agid, M. R. Luquin, J. A. Obeso and **J. Del Rio**	GM-1 ganglioside promotes the recovery of surviving midbrain dopaminergic neurons in MPTP-treated monkeys	965
J. H. Lue, J. Y. Shieh, K. N. Chen and **C. Y. Wen**	Synaptic relationships between GABA-immunoreactive boutons and primary afferent terminals in the rat cuneate nucleus	973
M. Cador, J. Dulluc and **P. Mormède**	Modulation of the locomotor response to amphetamine by corticosterone	981
S. N. Mitchell, K. M. Smith, M. H. Joseph and **J. A. Gray**	Increases in tyrosine hydroxylase messenger RNA in the locus coeruleus after a single dose of nicotine are followed by time-dependent increases in enzyme activity and noradrenaline release	989
D. T. O'Connor, J. H. Cervenka, R. A. Stone, R. J. Parmer, R. E. Franco-Bourland, I. Madrazo and **P. J. Langlais**	Chromogranin A immunoreactivity in human cerebrospinal fluid: properties, relationship to noradrenergic neuronal activity, and variation in neurologic disease	999
M. Jucker, L. C. Walker, M. C. Kibbey, H. K. Kleinman and **D. K. Ingram**	Localization of a laminin-binding protein in brain	1009
A. P. Nicholas, V. A. Pieribone and **T. Hökfelt**	Cellular localization of messenger RNA for beta-1 and beta-2 adrenergic receptors in rat brain: an *in situ* hybridization study	1023
C. J. S. Hassall, S. C. Stanford, G. Burnstock and **N. J. Buckley**	Co-expression of four muscarinic receptor genes by the intrinsic neurons of the rat and guinea-pig heart	1041
ERRATUM		1049